

## LISTING OF THE CLAIMS

What is claimed is:

1. A mechanism of An apparatus for separating and purifying DNA and the like nucleic acids which is comprising an integral monolith structure, characterized in that wherein through-pores (macro-pores) continuously extending from one end of the monolith structure to the other end and corresponding to the sizes of nucleic acids are provided and configured so that nucleic acids corresponding to the through-pores (macro-pores) can be retained respectively by allowing a solution containing nucleic acids to be separated to pass therethrough.
2. The mechanism of apparatus for separating and purifying DNA and the like nucleic acids according to claim 1, characterized in that the monolith structure employs an inorganic material ~~such as glass or silica or a hybrid material containing an organic material and an inorganic material~~, which is a porous body having macro-pores (through-pores) penetrating from the an upper surface to the a lower surface.
- 3.(amended) The mechanism of apparatus for separating and purifying DNA and the like nucleic acids according to claim 4 or 2, characterized in that the porous body of the monolith structure has micro-pores in the macro-pores.
4. (amended) The mechanism of apparatus for separating and purifying DNA and the like nucleic acids according to any of claims 1 to claim 3, characterized in that wherein the porous body of the monolith structure has a macro-pore size of 1 to 100 µm and a micro-pore size of 0 to 100 nm.
5. The mechanism of apparatus for separating and purifying DNA and the like nucleic acids according to any of claims claim 1 to 4, characterized in that wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

6. (amended) The mechanism of apparatus for separating and purifying DNA and the like nucleic acids according to any of claims claim 1 to 5, characterized in that wherein the mechanism employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

7. (new) The apparatus for separating and purifying nucleic acids according to claim 1, characterized in that the porous body of the monolith structure has micro-pores in the macro-pores.

8. (new) The apparatus for separating and purifying nucleic acids according to claim 1, wherein the porous body of the monolith structure has a macro-pore size of 1 to 100  $\mu\text{m}$  and a micro-pore size of 0 to 100 nm.

9. (new) The apparatus for separating and purifying nucleic acids according to claim 2, wherein the porous body of the monolith structure has a macro-pore size of 1 to 100  $\mu\text{m}$  and a micro-pore size of 0 to 100 nm.

10. (new) The apparatus for separating and purifying nucleic acids according to claim 2, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

11. (new) The apparatus for separating and purifying nucleic acids according to claim 3, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

12. (new) The apparatus for separating and purifying nucleic acids according to claim 4, wherein a disc formed with the monolith structure is placed in a column tube to form a monolith solid phase column.

13. (new) The apparatus for separating and purifying nucleic acids according to claim 2, wherein the mechanism employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

14. (new) The apparatus for separating and purifying nucleic acids according to claim 3, wherein the mechanism employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

15. (new) The apparatus for separating and purifying nucleic acids according to claim 4, wherein the mechanism employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.

16. (new) The apparatus for separating and purifying nucleic acids according to claim 5, wherein the mechanism employs a monolith solid phase column formed by detachably attaching a base formed with the monolith structure to a cylindrical body having the top and the bottom opened.